

HEADQUARTERS
AIR FORCE CAMBRIDGE RESEARCH LABORATORIES
OFFICE OF AEROSPACE RESEARCH

CRJT/Mr. Cronin/8626

30 July 1965

Quarterly Status Report No. 4,
NASA Contract R-22-13-012

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1. The following is Quarterly Status Report No. 4 for the period
1 April 1965 to 30 June 1965.

2. Flight Program

With appropriate fanfare the multilens camera and its control panel were formally accepted 3 June by the Air Force Cambridge Research Laboratories and on that same date installed in NASA's Convair aircraft. The following is the schedule of flights in which AFRL personnel participated, including checkout flights prior to delivery. All flights were on the same NASA aircraft.

<u>Date</u>	<u>Place</u>	<u>Geologic Features</u>	<u>Altitude</u>
21 April	Wheeler Springs, Calif.	Sespe red beds	8,000'
"	Dana Pt., Calif.	San Onofre breccia Coastal processes	8,000'
"	Scripps Beach, La Jolla, Calif.	Coastal processes	20,000' 7,000' 2,500'
22 April	Barstow, Calif.	Pisgah crater Basaltic extrusives	11,000' 7,000' 2,400'
3 June	Bucks Lake, Calif.	(Flown for Dr. R. Colwell)	
4 June	Mono Lake, Calif.	Mono craters Rhyolitic extrusives	7,500' 2,500'
5 June	Mono Lake, Calif.	Mono craters Rhyolitic extrusives	8,500' 2,500'
11 June	Martha's Vineyard, Massachusetts	Variegated sediments	10,000' 2,500'

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5. Personnel

No change in personnel assigned. J. F. Cronin, Principal Investigator, and R. W. Dowling and S/Sgt. R. E. Hudson, technicians, continued to provide the major effort. C. E. Molineux of CRJT assisted in the camera development, and Molineux, G. H. Cabaniss and Dr. K. E. Seifert, all of CRJT, also aided in the field program.

Efforts by AFRL to assign additional personnel continued. A physicist has been identified and he will be hired during August. A geochemist is also being sought.

6. Contract Extension

A three month no-cost extension of NASA DPN R-22-13-012 was requested by letter on 25 June 1965. To date there has been no reply to our request.

7. Research Reports

The following paper was given by Cronin at the 11th annual meeting of the American Astronautical Society on 4 May at Chicago and has also been submitted to the AAS for publication:

A Proposed Multispectral Photography Experiment for
AES Lunar Orbital Mission, by J. F. Cronin, J. B. Adams,
R. N. Colwell, and W. G. Tift.

8. Fiscal Information

Cumulative expenditures to 30 June 1965:

<u>Allocation</u>	<u>Expenditure</u>	<u>Balance</u>
\$120,000	\$51,000	\$69,000

\$30,000 of the unexpended balance is committed to a maintenance/modification contract for the multilens camera. The purchase request has been submitted and negotiations are underway to conclude such an arrangement. \$20,000 will be used for the construction and purchase of a spectral transmissometer. The remaining \$19,000 will be used to intensify the field program.

John F. Cronin
JOHN F. CRONIN
Principal Investigator
Terrestrial Sciences Laboratory

OWEN W. WILLIAMS
Chief
Terrestrial Sciences Laboratory

cc: Miss Winnie M. Morgan
Lt. Col. J. X. Brennan
Mr. Walter Baginsky

The performance of the camera was excellent. All film was taken to NASA/MSC (Houston) for processing, as requested by NASA and agreed to by AFCL.

Unfortunately the processed film of 21-23 April was shipped, in error, to the U. S. Geological Survey, Wash DC, from Houston, and was not received by AFCL until the week of 21 June at which time we also received the processed material of the June flights. It is obvious, of course, that detailed analyses of the results cannot be accomplished in one week. cursory inspection did reveal, however, that the infrared film of Pisgah crater was processed at such a high temperature that the film emulsion was destroyed, and the film of all other bands was so fogged that it is also of little value. Flights of Pisgah will have to be repeated.

On the positive side of our ledger of accomplishment are the results from Scripps Beach, Dana Pt., and Mono Craters, all of which looks most interesting. A detailed report, including analyses and examples, of all flights prior to 1 July will be presented to CESA/SM prior to 1 October. It has been agreed that 60 to 90 days is needed to process, analyze and report the results of each flight.

3. Field Program

It is our understanding that three sites have been chosen for intensive study by all investigators - Pisgah Crater, Mono Craters and Scripps Beach. For one reason or another such basic data as topographic and geologic mapping at the required scales, and adequate mineralogic and chemical analyses at the required sample density of these three sites are not or will not be available for some time. To sustain the aggressive tempo that we believe is desirable in this program, we have inaugurated studies at sites of our own choosing here in New England, Nova Scotia, and New York State, and have enlisted assistance through an existent AFCL contract using USAF funds. Mr. Cronin is the monitor of this contract.

Field personnel have been at work since mid-June and will continue without interruption until late September at (1) a complex, variegated sequence of Cretaceous sediments at Gay Head, Martha's Vineyard, Mass., (2) a thick well-exposed series of Triassic red beds, Nova Scotia, and (3) a granitic pluton at Cadillac Mt., Maine. An igneous extrusive site is yet to be selected. All studies, be they geologic, mineralogic, geochemical, spectrophotometric, polarimetric, or photographic, will be at a fine scale. Concurrent flights of the multilens camera over these sites will take place this August and September in either NASA or USAF aircraft.

4. Laboratory Program

The intensive effort originally planned for this phase of the contract is awaiting the addition of appropriate scientific personnel. Spectrophotometric measurements of a few samples collected during the field program have been obtained through various AFCL sources.